

sensing blinking signals of a turn signal of a second oncoming vehicle following a first oncoming vehicle, which are about to enter the intersection; and

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emitting light toward the driver of the vehicle waiting to make a left turn, wherein the driver is able to visually check the emitted light, and the sensing and emitting steps are conducted using a sensor for sensing light of the blinking signals of the turn signal which is installed linearly along the right side of the road and is longer than the length of the second oncoming vehicle to detect a right-turn signal of the second oncoming and a light emitter for emitting light based on the signals sensed by said sensor which is installed at the corner of the intersection; the driver making a left turn when the driver deems condition to be safe taking into consideration, the presence or absence of the light reflected.

#### REMARKS

Claims 1, 5 and 9-12 have been amended to clarify the invention. Support for the amendments can be found on page 7, lines 4-12, for example. The specification has been amended to add brief and detailed descriptions of the newly added figures. Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE." The amendments do not constitute the addition of any new matter to the specification. Applicants respectfully request entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

#### Specification Objection

The specification has been objected to because it does not include brief and detailed descriptions of the newly added figures. The specification has been amended to correct the informalities. Withdrawal of this objection is respectfully requested.

#### Rejection Under 35 U.S.C. § 112

Claims 1-5 and 9-12 have been rejected under 35 U.S.C. § 112, first paragraph and second paragraph, with regard to the newly added limitation of "continuously." The term "continuously" has been replaced with the term "linearly" as treated by the Examiner, thereby obviating this rejection. Applicant respectfully requests withdrawal of this rejection.

#### Rejections of Under 35 U.S.C. § 103

Claims 1, 2, 5, 8, 9 and 12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over each of: Kushida (U.S. Patent 6,264,334); Gillner et al. (U.S. Patent 4,978,207); Voelker et al. (U.S. Patent 3,200,705); Cardarelli (U.S. Patent 2,164,985); Wing (U.S. Patent 1,930,917); and van Gelder (U.S. Patent 1,837,085). Claims 1, 3, 5, 8, 10 and 12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over each of Anders (U.S. Patent 5,665,793 and 5,472,737) and Feuvray (U.S. Patent 4,248,001). Claims 1, 4, 5, 8, 11 and 12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over each of: Custers et al. (U.S. Patent 6,305,874); Swemer (U.S. Patent 5,042,894); Eigenmann (U.S. Patent 4,993,868); Callhan (U.S. Patent 4,737,049); and Wyckoff (U.S. Patent 4,069,787).

Applicant respectfully traverses this rejection under 35 U.S.C. § 103. The claims as clarified patentably distinguish over the references.

With regard to a light-reflecting material, Claims 1 and 9-11 have been amended to recite that the material is installed on a road surface linearly along the centerline of the road and is longer than the length of the second oncoming vehicle to receive light of a left-turn signal of the second oncoming vehicle and reflect the light back to the second oncoming vehicle and the waiting vehicle.

With regard to a light-emitting material comprising a sensor and a light emitter, Claims 5 and 12 have been amended to recite that the sensor is installed linearly along the right side of the road and is longer than the length of the second oncoming vehicle to detect a right-turn signal of the second oncoming vehicle, and the light emitter is installed at the corner of the intersection.

In contrast, none of the above references teaches or suggests a light-reflecting material which is longer than the length of the second oncoming vehicle. Further, none of the above references teaches or suggests a sensor which is longer than the length of the second oncoming vehicle.

In rejecting claims under § 103, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, the prior art reference must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); M.P.E.P. § 706.02(j). However, as noted above, the above references fail to disclose the claimed specific light-reflecting material or

Appl. No. : 09/976,365  
Filed : October 10, 2001

light-emitting material. Accordingly, no proper *prima facie* showing of obviousness has been set forth.

Moreover, there is no teaching or suggestion in any of these references to modify their disclosures to arrive at the recited light-reflecting material or light-emitting material. The light-reflecting material or light-emitting material is designed to allow a driver to see the turning intentions of a second oncoming car that is following a first oncoming car. By the light-reflecting material or light-emitting material, a driver waiting to make a left turn can surely and accurately visually check the traveling intention of the second oncoming vehicle throughout the entire time that the second oncoming vehicle is approaching the intersection. This can reduce the burden placed on the driver waiting to make a left turn, improves traffic safety at intersections, and greatly contributes to society. See page 9, lines 11-14 of Applicant's specification. The above references disclose nothing that would suggest that such a result could be achieved, as they are not specifically concerned with the problem addressed by the presently claimed invention, namely the ability to identify the turning intentions of second oncoming vehicles.

In view of the foregoing, the present invention could not be obvious over any of the references. Applicants respectfully request withdrawal of these rejections.

### CONCLUSION

In light of the Applicant's foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Respectfully submitted,

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Dated: May 30, 2003

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

The following paragraphs have been inserted between page 6, line 11 and page 6, line 12:

FIG. 3 is a schematic illustration of an embodiment of a reflecting mirror used in the present invention.

FIG. 4 is a schematic illustration of an embodiment of a luminescent paint used in the present invention.

FIG. 5 is a schematic illustration of an embodiment of an optical fiber used in the present invention.

The following paragraph has been inserted after the last paragraph of page 6:

FIG. 3 shows an embodiment of a reflecting mirror 4a, FIG. 4 shows an embodiment of a luminescent paint 4b, and FIG. 5 shows an embodiment of an optical fiber having two ends 4c, 4d.

**IN THE CLAIMS:**

Claims 1, 5 and 9-12 have been amended as follows:

1. (Twice Amended) A left-turn driving support system for supporting a driver of a vehicle waiting to make a left turn at an intersection where vehicles travel on the right side of a road, comprising a light-reflecting material which reflects light from blinking signals of a turn signal of a second oncoming vehicle following a first oncoming vehicle, which are about to enter the intersection, wherein said light-reflecting material is installed ~~continuously~~ on a road surface linearly along the centerline of the road and is ~~sufficiently~~ longer than the length of the second oncoming vehicle to detect receive light of a left-turn signal of the second oncoming vehicle and reflect the light back to the second oncoming vehicle and the waiting vehicle, whereby the driver of the waiting vehicle can see the reflecting light against the second oncoming vehicle.

5. (Twice Amended) A left-turn driving support system for supporting a driver of a vehicle waiting to make a left turn at an intersection where vehicles travel on the right side of a road, comprising a light-emitting material which emits light from blinking signals of a turn signal of a second oncoming vehicle following a first oncoming vehicle, which are about to enter the intersection, wherein said light-emitting material comprises a sensor for sensing light of the blinking signals of the turn signal and a light emitter for emitting light based on the signals

sensed by said sensor, and said sensor is installed ~~continuously~~linearly along the right side of the road and is ~~sufficiently longer than the length of the second oncoming vehicle~~ to detect a right-turn signal of the second oncoming vehicle, and said light emitter is installed at the corner of the intersection, whereby the driver of the waiting vehicle can see the emitting light from the light emitter.

9. (Twice Amended) A method for supporting a driver of a vehicle waiting to make a left turn at an intersection where vehicles travel on the right side of a road, comprising

sensing blinking signals of a turn signal of a second oncoming vehicle following a first oncoming vehicle, which are about to enter the intersection; and

reflecting light toward the driver of the vehicle waiting to make a left turn, wherein the driver is able to visually check the reflected light, and the sensing and reflecting steps are conducted using a reflecting mirror which reflects light from the blinking signals of the turn signal and is installed ~~continuously~~on a road surface linearly along the centerline of the road and is ~~sufficiently longer than the length of the second oncoming vehicle~~ to detect receive light of a left-turn signal of the second oncoming vehicle and reflect the light back to the second oncoming vehicle and the waiting vehicle; the driver making a left turn when the driver deems condition to be safe taking into consideration, the presence or absence of the light reflected.

10. (Twice Amended) A method for supporting a driver of a vehicle waiting to make a left turn at an intersection where vehicles travel on the right side of a road, comprising

sensing blinking signals of a turn signal of a second oncoming vehicle following a first oncoming vehicle, which are about to enter the intersection; and

reflecting light toward the driver of the vehicle waiting to make a left turn, wherein the driver is able to visually check the reflected light, and the sensing and reflecting steps are conducted using a luminescent paint which reflects light from the blinking signals of the turn signal and is installed ~~continuously~~on a road surface linearly along the centerline of the road and is ~~sufficiently longer than the length of the second oncoming vehicle~~ to detect receive light of a left-turn signal of the second oncoming vehicle and reflect the light back to the second oncoming vehicle and the waiting vehicle; the driver making a left turn when the driver deems condition to be safe taking into consideration, the presence or absence of the light reflected.

11. (Twice Amended) A method for supporting a driver of a vehicle waiting to make a left turn at an intersection where vehicles travel on the right side of a road, comprising

sensing blinking signals of a turn signal of a second oncoming vehicle following a first oncoming vehicle, which are about to enter the intersection; and

reflecting light toward the driver of the vehicle waiting to make a left turn, wherein the driver is able to visually check the reflected light, and the sensing and reflecting steps are conducted using an optical fiber having two ends which senses the blinking signals of the turn signal from one end and reflects the light from the other end and is installed ~~continuously~~ on a road surface linearly along the centerline of the road and is sufficiently longer than the length of the second oncoming vehicle to detect sense light of a left-turn signal of the second oncoming vehicle and reflect the light back to the second oncoming vehicle and the waiting vehicle; the driver making a left turn when the driver deems condition to be safe taking into consideration, the presence or absence of the light reflected.

12. (Twice Amended) A method for supporting a driver of a vehicle waiting to make a left turn at an intersection where vehicles travel on the right side of a road, comprising

sensing blinking signals of a turn signal of a second oncoming vehicle following a first oncoming vehicle, which are about to enter the intersection; and

emitting light toward the driver of the vehicle waiting to make a left turn, wherein the driver is able to visually check the emitted light, and the sensing and emitting steps are conducted using a sensor for sensing light of the blinking signals of the turn signal which is installed ~~continuously~~ linearly along the right side of the road and is sufficiently longer than the length of the second oncoming vehicle to detect a right-turn signal of the second oncoming and a light emitter for emitting light based on the signals sensed by said sensor which is installed at the corner of the intersection; the driver making a left turn when the driver deems condition to be safe taking into consideration, the presence or absence of the light reflected.